



Validation Report

Reference Number: PCV: INO 2008-04
Project Number: 27361
Loan Number: 1579
February 2008

Indonesia: Northern Sumatra Irrigated Agriculture Sector Project

Operations Evaluation Department

Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
BAPPEDA	–	Badan Perencanaan Pembangunan Daerah
DMF	–	design and monitoring framework
EIRR	–	economic internal rate of return
M&E	–	monitoring and evaluation
NAD	–	Naggroe Aceh Darussalam
O&M	–	operation and maintenance
OED	–	Operations Evaluation Department
PCR	–	project completion report
RRP	–	report and recommendation of the President
WUA	–	water users association

Key Words

asian development bank, economic analysis, irrigation, irrigation service fees, operations and maintenance, project completion report, project implementation, validation, water resources

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OED PCR Validation

1. Basic Project Data		PCR Review Date Posted:	February 2008	
Project Number:	27361		Appraisal	Actual
Project Name:	Northern Sumatra Irrigated Agriculture Sector Project	Total Project Costs (\$M):	217.0	106.4
Country:	Indonesia	Loan/Credit (\$M):	130.0	65.4
Sector(s):	ANR	Cofinancing (\$M):		
Financing (\$M):	ADF: \$0.0	Borrower Contribution (\$M):	87.0	41.0
	OCR: \$130.0	Board Approval Date: 13 Nov 1997		
Cofinanciers:		Closing Date: 30 Apr 2006		
Project Officers:	Name:	Designation:	From (month/yr)	To (month/yr)
Appraisal/ Implementation	I. Fox	Rural Development Specialist	Jul 1997	Dec 1999
	A. Malik	Senior Project Specialist	Jan 2000	Dec 2001
	C. Wensley	Senior Project Specialist	Mar 2002	Mar 2004
	H. S. Soewartono	Senior Project Officer	Aug 2004	Feb 2005
	P. Wardani	Senior Project Officer	Mar 2005	Jun 2006
PCR	B. Alimov	Environmental Economist	Oct 2005	Jun 2007
Evaluator:	Ganesh Rauniyar	Director: R. Keith Leonard		
Quality Control Reviewer:	Ganesh Rauniyar			

2. Project Description (as stated in RRP)

- a. **Rationale and Expected Impacts.** Although economic and social conditions in Indonesia have improved considerably in the last 25 years, poverty and limited employment opportunities persist in many parts of northern Sumatra where, due to a combination of factors including (i) remoteness; (ii) weak institutional capacity; and (iii) limited access to education and healthcare, the benefits of economic growth have not been equitably shared. Agriculture continues to play a central role in the outer islands as a source of employment and income for many small farmers, and of foodstuffs and raw materials. The need for improvement in the performance of irrigated agriculture in northern Sumatra, reflects (i) increasing national demand for foodstuffs; (ii) continuing loss of highly productive irrigated land, in Java and Bali, to urban and industrial development; (iii) disparate levels of development between provinces and the persistence of rural poverty in Sumatra; and (iv) the potential for rapid improvement in the productivity of irrigated agriculture with relatively small additional investments. Overall, the Project was expected to increase incomes and employment opportunities for 350,000 farming families in Nanggroe Aceh Darussalam, North Sumatra, West Sumatra, Jambi, and Riau.
- b. **Objectives or Expected Outcome.** Increase in agricultural productivity through improvements in existing irrigation systems and institutions, including farmers' associations.
- c. **Components.** The Project has four major components: Part A: Irrigation Improvement, Part B: Agricultural Support, Part C: Water User Association (WUA) Support, and Part D: Strengthening Implementation Coordination.

- d. **Outputs.** The expected outputs were: (i) rehabilitated and upgraded existing small- and medium-scale irrigation schemes (250,000 hectares [ha]), (ii) improved operation and maintenance (O&M) and introduction of irrigation services fees (150,000 ha), (iii) handed over responsibility for O&M of schemes with 500 ha or less to WUAs (100,000 ha), (iv) strengthened abilities of the provincial and district water resources services to prepare and implement subprojects, (v) improved data management for water resources planning, (vi) integrated river basin planning principles into all irrigation design and management, (vii) strengthened agricultural support by improving the capacity of the provincial and district food crops agricultural services and agricultural information and extension centers, (viii) strengthened WUAs to promote greater beneficiary participation in system management and O&M, (ix) enhanced Government's policy on irrigation O&M, and (x) introduced cost recovery from beneficiaries with the aim of achieving full cost recovery for routine O&M in the long term.

3. Evaluation of Design and Implementation (Evaluator Assessment of Actual vs. Envisioned)

- a. **Relevance of Design and Formulation.** Both Asian Development Bank (ADB) and the Government project completion reports (PCRs) [ADB. 2007. PCR: Northern Sumatra Irrigated Agriculture Sector Project in Indonesia. Loan 1579-INO., Manila; Ministry of Public Works, Ministry of Agriculture and Ministry of Home Affairs. 2006. Government PCR: Northern Sumatra Irrigated Agriculture Sector Project (NSIASP). Loan 1579-INO. Jakarta]. However, the Project is rated as *partly relevant* by Operations Evaluation Department (OED) revalidation of ADB PCR. The Project was consistent with (i) the Government's development priorities and policies throughout the project cycle—formulation, appraisal, approval, implementation and completion; (ii) ADB's medium-term strategic framework; and (iii) ADB's operational strategy for Indonesia. The project design, however, was overambitious in scope covering 250,000 ha in five provinces for the envisaged project duration. By definition, the original design lacked relevance if the scope had to be reduced by 44% at reformulation in 2001 in order to complete the Project within the original loan closing date. Evaluator notes that paddy cultivation was not a primary economic activity in Jambi and Riau and both provinces had weaker regional water resources services compared to other three provinces—Naggroe Aceh Darussalam (NAD), North Sumatra, and South Sumatra. The inclusion of Jambi and Riau provinces was less justified in the scope of the Project. According to ADB, the revised targets set at reformulation of the Project required two extensions. The first extension was for 14 months, and was meant to ensure the strengthening of agricultural and WUA services. The second extension was for 4 months, and it was associated with late release of budget in 2005. It is not clear from the PCRs if the implementation of activities associated with agricultural and WUA services were appropriately estimated at reformulation. While lessons from ADB assistance in water resources were incorporated and major risks were appropriately identified in the report and recommendation of the President (RRP), required risk mitigation measures were not outlined.
- b. **Outputs (or conditions in the case of program loans) and costs as envisioned during appraisal as compared to actual costs and achievement of outputs; reasons for any deviation.** A 4-year delay in project implementation led to substantial reduction in the scope of the Sector Project from 250,000 ha to 140,000 ha and 48% reduction in loan budget from \$130 million to \$68.4 million. The "irrigation service fees" as a sustainable mechanism for O&M and cost recovery did not operationalize because subsequent legislation (Water Law No. 7, 2004) made this initiative redundant. The proposed Water Resources Data Centre was transferred to ADB financed 'Capacity Building Project in the Water Resources Sector' to avoid duplication of these activities. The Project Loan closed with 18 months delay on 30 April 2006. Overall, the total project cost reduced from \$217 million at appraisal to \$106.445 million at completion. The 'strengthening implementation coordination' output experienced the largest cut in the funding (nearly 80%). On the other hand, 'WUA support' actual expenditure was nearly five times more than the appraisal estimates. No justification was found for these variations. A summary of project costs is provided in the PCR (Appendix 4).

c. **Project Cost, Disbursements, Borrower Contribution, and Conformance to Schedule (as relevant to project performance).** The original cost of the Project, including interest and other charges on the loan during implementation was estimated at \$217 million and ADB was to fund \$130 million from the Bank's ordinary capital resources, having a maturity of 26 years, including a grace period of 6 years. At the request of the Government, \$61.8 million were cancelled during implementation (ADB PCR, footnote 2, para. 34). The net loan amount was \$65.4 million after the cancellation of the unused loan balance of \$2.9 million. The loan cancellation was primarily associated with the reduced scope rather than the depreciation of Indonesia Rupiah. The actual disbursement was only 5.8% during the first 5 years. Disbursement figures were 14.9%, 44%, 21.5% and 13.9% for 2003, 2004, 2005 and 2006, respectively.

d. **Implementation Arrangements, Conditions and Covenants, and Related Technical Assistance.** The Project followed implementation arrangements as per appraisal. However, the implementation arrangement was quite complex. There were four agencies at the national level, coordination committees, and working groups at the provincial and district levels. In addition, there were three implementing agencies at the provincial level for irrigation improvement programs; agricultural support was implemented by provincial agricultural projects under technical guidance of the Ministry of Agriculture; and water users support and strengthening implementation coordination was implemented by provincial and district level Regional Development Planning Agency, Badan Perencanaan Pembangunan Daerah (BAPPEDA) projects in three rice-dominated provinces and only by provincial BAPPEDA projects in Jambi and Riau Provinces. The ADB PCR (para. 38) also states that coordination at the national level and between the project secretariat and provincial working groups was satisfactory, but project coordination with district working groups was less satisfactory, partly because district working groups had a limited role in preparation of annual work plans under the Project. Timely submission of the annual work plan was a problem which delayed normal financial processing.

PCR does not provide data on frequency of meetings held by national steering committee and provincial and district coordination committees. Hence, their effectiveness cannot be ascertained.

The flow of funds was less than satisfactory. The funds for all central and provincial activities and entire agricultural support activities were funded by national development budget, while rest of the activities were funded through the Government Emergency Budget line 69, which was administered by Ministry of Finance under coordination of the Department of Home Affairs. According to the Government PCR, the national development budget funds were usually available during April-May but the Emergency Budget line 69 was available only around July. The persistent delay in fund release on time seriously hampered project implementation.

ADB PCR states that 24 of the 27 loan covenants were complied with two loan covenants pertaining to irrigation service fees collection, and transfer of project facilities to WUAs were not applicable because Government promulgated Law No. 7/2004.

Two recruitment irregularities for consulting services along with substantial reduction in the project scope during reformulation contributed to substantial delay in fielding consultants. The ADB PCR noted that the consulting services concentrated at the central and provincial level, and hence, assistance at the district level, that is, in implementation was very much limited.

e. **Performance of the Borrower and Executing Agency**

Borrower: Borrower performance is assessed, by the Evaluator, as *less than satisfactory*. Persistent delays in provision of national government funds allocated for the Project adversely impacted the project implementation. Borrower was not able to fulfill its commitment to providing budgeted and counterpart funds on time thereby adversely affecting project performance. Similarly, had due norms and procedures been followed in recruiting consulting services, the start-up delays could have been potentially minimized.

Executing Agency: The performance of the executing agency, Directorate General of Water Resources, was assessed by the Evaluator as *modestly satisfactory*, given the constraints and operational difficulties that the Project went through. Realistic reformulation of the Project is very much appreciated. The Department of the executing agency, Department of Public Works, was split into two departments in 1999, which merged in 2003. The executing agency itself was reformed in 2005. These changes combined with the changes in water legislation resulted in lot of uncertainties in responsibilities of the departments and staff assigned to the Project. However, direct staffing of the Project Secretariat supported by unchanged staff throughout the project implementation contributed to the stability in project administration.

- f. **Performance of the Asian Development Bank.** The performance of the ADB is assessed by the Evaluator as *less than satisfactory*. It fielded six review missions, five special project administration missions and one project completion review mission. High turnover of ADB project officers (six during the project) may also have had impeded the project performance. A planned mid-term review was replaced by reformulation mission. The evaluator considers that given initial implementation difficulties, ADB should have acted much earlier and taken necessary steps for reformulation. ADB could have also played an active role during the first 2 years of the Project. There was 2 years time lag in fielding first mission following inception mission in December 1998. ADB applied its *Anticorruption Policy* in 2001 and identified irregularities in consultant selection process, but rather took long time to resolve the issue. In 2004, when the initial teething problem was sorted out, ADB handed over the Project to the Indonesia Resident Mission, and finally the project reformulation took place with reduced scope in 2001. The evaluator also notes that while little progress was made during the first four years of implementation the project was not identified 'at risk', hence questioning the effectiveness of ADB supervision.

4. Evaluation of Performance (Evaluator assessment)

- a. **Relevance.** Rated *Partly Relevant* by the Evaluator (please refer to 3a above)—(rated relevant by both ADB and Government PCRs).
- b. **Effectiveness in Achieving Outcome.** Rated *Less Effective* by the Evaluator (concurred with ADB PCR; not rated by the Government PCR). The Project achieved 52% of the appraisal and 94% of the reformulation targets for rehabilitation and upgrading, and introduction of improved O&M but it only partly strengthened provincial and district water resource services. Improvement in data management for water resource water planning was not achieved under the Project as this was transferred to another ADB project. A total of 515 demonstration farms were established against the revised target of 980 farms. The agricultural support services activities were supposed to start only after completion of rehabilitation and upgrading of irrigation schemes but due to significant delays in project implementation and persistent late availability of funds only limited activities were undertaken during a short period. While most of the revised physical targets for WUA support were achieved, the implementation delays did not permit delivery of required training in water management. An important part of the Project, 'irrigation service fee' activity became redundant, thereby questioning financial viability of the WUAs. The Project partly achieved 'strengthening implementation coordination' due to reduced and delayed fund provisions. While most of the loan covenants were partly or fully complied with, several factors contributed to the Project assessed as less effective: (i) 4-year initial delay in implementing the Project, (ii) lack of full ownership of the Project by district working group, (iii) complicated implementation arrangements, (iv) persistent delays in release of funds to undertake project activities on schedule, (v) long delays in fielding consultants, and (vi) inclusion of somewhat different provinces with less importance to paddy production (Jambi and Riau provinces). The Project reformulation in 2001 with 44% reduced scope and shorter planned implementation period after reformulation did not permit implementation of originally envisaged activities. In evaluator's opinion, available implementation period after reformulation was not adequate to effectively support and sustain already formed WUAs.

- c. **Efficiency in Achieving Outcome and Outputs.** Rated *Efficient* by the Evaluator based on *reduced scope* (rated efficient by both ADB and Government PCRs). Project outcome and outputs were assessed based on reformulated targets. The economic analysis demonstrated reasonable assumptions and a fair reflection of the Project at the time of PCR. There was a substantial difference between overall economic internal rate of return (EIRR) between the ADB and Government PCRs (25.2% vs. 15.6%); although the Government PCR did not provide details on underlying assumptions in the economic analysis. Similarly, individual subprojects varied considerably in the EIRR. Riau subprojects were noted to be economically not viable. Increase in per ha yield of rice is confirmed by both PCRs—from 3.56 tons/ha/year at appraisal to 4.31 tons/ha/year reported by ADB PCR and to 4.1 tons/ha/year reported by Government PCR. However, actual rice yields at reformulation were not reported in both PCRs. Furthermore, some of the factors mentioned earlier in 3(b) also adversely impacted on efficiency in achieving outcome and output.
- d. **Preliminary Assessment of Sustainability.** Rated *Less Likely* by the Evaluator (rated Likely by ADB PCR and Less Likely/Unlikely by the Government PCR). While the ADB PCR does not report any constraints, the Government PCR ratings are based on an Asset Management Study as implemented by the project secretariat that examined sustainability of the (i) physical infrastructure, (ii) institutional infrastructure, and (iii) human resource available and trained for scheme O&M. The survey indicated that the investments were not yet sustainable because (i) the physical infrastructure was generally not complete; (ii) the farmer WUAs and irrigation committees were not yet fully established, and the provincial and district irrigation legislation had not been passed; and (iii) the lack of qualified field staff was a serious problem. Similarly, lack of nationwide accepted service-levels for irrigation O&M, with clear description of O&M standards and implementation models, which can be regarded as standard by both farmer WUA and project unit field staff. Furthermore, too low levels of O&M funding by provinces and districts did not provide any insight into likely sustainability of irrigation schemes supported by the Project. The evaluator endorses arguments made in the Government PCR. The Evaluator recognizes the recent legislative and institutional changes including passage of Water Law in 2005, government regulations on irrigation, and increased budget for O&M for 2008. However, evidence in support of the effectiveness of irrigation guidelines, and some other approach to ensure cost recovery and sustained basis for O&M, would have to be established for the Project to be likely sustainable. In addition, it is not clear how the allocated O&M funds will be used by the regional governments. While the number of WUA were increased, very little information is available to assess their performance and likely sustainability. However, the Government PCR (para. 63) reported a very minor increase in WUA participation in O&M financing from 30.5% to 31.5%.
- e. **Impact (both intended and unintended).** The Project had positive impact on income of paddy farming families through increase in per ha crop yield. The impact on employment was not specified in the PCR but the evaluator assumes it to be positive due to increase in cropping intensity from 153% to 176% reported in ADB PCR. Based on the Project's monitoring and evaluation database, the Government PCR also reported that (i) non-rice crop area increased from 4% to 7%, (ii) decrease in yield losses from pests, disease, drought and flood from 23.7% to 9.4%, (iii) average net income increase by 29%, (iv) a 10% increase in the number of WUA in irrigation, (v) an increase in the role of women in irrigation from 34.5% to 44.5%, and (vi) access to training for 4,745 individuals. While these figures were derived based on two static points and sample surveys, additional analysis would be warranted to determine the net contribution of the Project (be with and without project comparison).

5. Overall Assessment, Lessons, and Recommendations (Evaluator Assessment)

- a. **Overall Assessment: Please refer to Section 4 above.** Overall assessment of the Sector Project is *Partly Successful* compared to partly successful reported by the Government PCR and successful reported in ADB PCR.

b. Lessons. The Evaluator agrees with the lessons identified in the ADB PCR. Some additional lessons are:

- (i) An in-depth institutional analysis at all levels of project implementation by the PPTA team is necessary so that appropriate and effective capacity building provisions are made in the project design.
- (ii) Realistic assumptions based on past experience (or plausibly changed circumstances) are necessary in making provision for counterpart funding in project design taking into account the economic conditions of the country, province, district and local communities.
- (iii) Preparation and approval of new legislation is outside the control of a project, and hence, such requirements should not be a precondition for loan effectiveness. However, if this is essential for the success of an investment project, it would make sense for this to be a precondition for processing.
- (iv) Meaningful benefits can be realized by recruiting and fielding consultants shortly after commencement of a project. This may require advance procurement of consulting services, if necessary. However, if the project design integrity assumes early recruitment of consultants, but it almost never happens, we have to call into question the soundness of this assumption.

c. Recommendations: The Evaluator agrees with the ADB PCR that there is a need for supporting coverage of additional area, originally planned under the Project. However, it was the Borrower's decision to downsize the loan amount and complete the Project within the stipulated original loan closing date. Due diligence is required on the part of ADB in committing additional funds to the project-related future activities. Moreover, the project cost recovery and sustainable basis for O&M are equally important and, in Evaluator's opinion, these need to feature in ADB' policy dialogue with the Government. The Evaluator recommends that the Project be identified as a candidate for future project performance evaluation report to be conducted by OED.

6. M&E Design, Implementation, and Utilization (Evaluator assessment)

The Evaluator noted that the design, implementation, and utilization of the monitoring and evaluation (M&E) system in the Project were weak. While the project design monitoring framework stated quantitative physical targets for rehabilitation and upgrading, none of the indicators addressed quality issues. Similarly, several other indicators were quite vague, and hence, were difficult to be measured. The baseline survey was conducted only in 2003 for the first time. Four of the five provinces had budget allocation for an annual follow-up surveys for 2004 and 2005; while in NAD, only one survey was conducted in 2004. The M&E program was carried out in only 22% of schemes covering 29% of area as established by the reformulation of project in 2001. The low coverage of M&E was associated with more than 4 years delay in start-up of the Project and due to capacity constraint at the district level. The M&E program focused on monitoring progress in four result areas: (i) food crop production, crop diversification and farmers' income; (ii) sustainability of irrigation schemes; (iii) level of agricultural extension services; and (iv) involvement of women in project activities. No systematic reporting progress on other components of the projects was established. The RRP did not provide clear guidance on establishing a functional M&E system for the Project.

7. Other (Safeguards, including Governance and Anticorruption; Fiduciary Aspects)

Evaluator did not find any evidence of safeguard violation in the Project. The services of Package 4 consultants at the end of 2004 could no longer be extended because the lead firm and one of its associated firms were included in the list of ADB sanctioned firms, and the amount of additional funds for amending the contract was too substantial compared to the original contract. After two short extensions of the original contract, the ADB agreed to assign the contract to one of the other three international firms in association with the two original core team local consultants as all individual experts were on free-lance basis.

8. Ratings	ADB PCR	Government PCR	OED Review	Reason for Disagreement/Comments
Relevance:	Relevant	Relevant	Partly Relevant	Unrealistic project coverage in the original project design and no demand analysis in project reformulation, complicated implementation arrangement, lack of adequate institutional analysis and corresponding provision for meeting gaps in capacity at all levels
Effectiveness in Achieving Outcome:	Less Effective	Less Effective	Less Effective	
Efficiency in Achieving Outcome and Outputs:	Efficient	Efficient	Efficient	
Preliminary Assessment of Sustainability:	Likely	Unlikely/ Less Likely	Less Likely	Please refer to 4d above
Borrower and EA:	Satisfactory		Less than Satisfactory	4-year delay, delay in fund release
Performance of ADB:	Satisfactory	Satisfactory	Less than Satisfactory	Insufficient supervision, particularly in the early years, significant delays in project reformulation
Impact:	Positive	Positive	Positive	
Overall Assessment:	Successful	Partly Successful	Partly Successful	
Quality of PCR:			Partly Satisfactory	

9. Comments on PCR Quality

Based on:

- Quality and completeness of evidence and analysis to substantiate claimed ratings
- Consistency with PCR Guidelines (PAI 6.07)
- PCR candor and internal consistency; consistency of narrative/ratings with monitoring indicators, other data
- Candid, accurate consideration of exogenous factors (positive and negative) and attribution of results
- Extent to which lessons and recommendations are based on evidence and analysis

Evaluator's assessment of the ADB PCR is *Partly Satisfactory*:

- ADB PCR has followed the required guidelines but it lacks sufficient evidence to support claimed ratings, particularly for relevance and sustainability. It does not discuss the merits associated with the reduced scope of the Project at reformulation, and yet it recommends further rehabilitation and upgrading irrigation facilities in the future (para. 63). Also, it is not clear, why reformulation had to wait 4 years.
- It does not provide comparative progress for design and monitoring framework (DMF) parameters at project completion. In particular, the DMF is as per the RRP; while the PCR is based on reformulated project. It is not clear if the DMF was revised at the reformulation. Furthermore, it does not discuss whether the validity of assumptions has not been tested. The assumptions, particularly with respect to funds for O&M at the district and local level proved inconsistent. No risk mitigation measures were proposed.
- The ADB PCR makes no reference to the Government's PCR, although the Government PCR is more informative and provides a good assessment of the project performance.
- The recommendations paras. 60–63 are not based on analysis provided in the PCR, but rather point to the limitations imposed by the restrictive reformulation of the Project in 2001, and supports original project design to a large extent.

REGIONAL DEPARTMENT'S RESPONSE TO THE PROJECT COMPLETION REPORT VALIDATION REPORT

The Operations Evaluation Department (OED) received comments from the Indonesia Resident Mission (IRM) on 16 and 22 November 2007. Revised Project Completion Report (PCR) Validation Report was forwarded to IRM on 7 December 2007. At the request of IRM, Director, OED1 held a videoconference¹ on 27 December 2007 to further discuss the comments from IRM and to finalize the PCR Validation Report. All relevant comments have been duly incorporated by OED in the final report.

¹ Comprised of Director, OED1; Evaluation Specialist (Quality Control Reviewer); and Evaluation Officer. The IRM was represented by its Project Officer.